ALLEGRO™ 6800
MOBILE IMAGING TABLE

OSI Allegro

MAINTENANCE and REPAIR MANUAL

OSI
A Subsidiary of the Mizuho Group

30031 Ahern Avenue
Union City, CA 94587-1234
Bus: 510-429-1500 **Toll Free:** 800-777-4674 **Fax:** 510-429-8500

ã **OSI 2002**

NW0391 Rev.A

TABLE OF CONTENTS

SECTION 1. INTRODUCTION
General Description 3
Specifications 3

SECTION 2. COTROLS INDENTIFICATION
Table Orientation.....4
Model Number & Serial Number.....4

SECTION 3. BASIC OPERATION
Control Operation 5
Floor Lock 5
Hand Pendant.....5
Table Top Home 6
Joystick: Table Top Translation.....6

SECTION 4. INSPECTION
Acceptance and Transfer 8
Preoperative 8
Postoperative 8
Annually 8

SECTION 5. THE ELECTRICAL SYSTEM
Description 9
On/Off Circuit Breaker Switch 9
Component Circuit Breakers 9
Power Cord.....9
Floor Lock System 9

SECTION 6. CLEANING
Maintenance 11
Cleaning and Disinfecting.....11
Lubrication.....12
Table Storage 12

SECTION 7. PRE-OP. FUNCTION CHECK
PRE-OP. Function Check.....13

SECTION 8. GLOSSARY of TERMS
Basic assumptions of Patient Orientation on the tabletop.....15

SECTION 9. TROUBLESHOOTING
Electrical System.....16

SECTION 10. REMOVAL and REPLACEMENT of COMPONENTS
Floor-lock Foot Replacement 17
Tilt Sensor-Actuator 19
Stepper-controller Tray 21
10 Amp Motor-control 23

SECTION 11. TECHNICAL DRAWINGS and PARTS LISTS
6800 Allegro Table Interconnect Diagram 24
Table Assembly Bill of Materials 25
Table Assembly Exploded View 26
Base Cover Assembly Exploded View 27
Rear Base Cover Assembly Exploded View 28
Table Base Assembly Exploded View 29
X - Ring Assembly Exploded View 30
Y - Ring Assembly Exploded View 31
Y - Ring Assembly Bottom View 31
X - Y Coupler Assembly Exploded View 32
X - Y Coupler Assembly Bottom View 33
Replacement / Spare Parts List……..…….…….34

SECTION 12. OSI TECHNICAL SERVICE
Contact for Parts and Service 35

IMPORTANT NOTICES

CAUTION: To ensure safe operation of the equipment, please READ THESE INSTRUCTIONS COMPLETELY and keep this manual readily available to OR personnel for future reference.

Carefully observe and comply with all warnings, cautions and instructions placed on the equipment or described in this manual.

In this manual, the ⚠ **WARNING** symbol is intended to alert the user to the presence of important operation, maintenance, or safety instructions.

⚠ **WARNING**

Proper preoperative and intra-operative procedures must be followed to prevent venous stasis and pooling, pressure sore development, neuropathy, improper electro surgical tissue grounding, hypertension and hypothermia.

NOTE: *The application techniques outlined in these instructions are the manufacturer's suggested techniques. The final disposition of each patient's care as related to the use of this equipment rests with the attending physician.*

This device is to be used by trained personnel only.

1.0 INTRODUCTION

General Description

The 6800 Imaging Table is designed to safely hold a patient in the proper position undergoing radiographic or surgical procedures.

It is a stand-alone, single-pedestal electrically operated table designed to position a patient in a prone, lateral or supine position during radiographic or surgical procedures. The table has four primary electrically powered functions; up/down, left/right lateral tilt, Trendelenburg/Reverse Trendelenburg tilt and X-Y cross translation. Electromechanical actuators and electric stepper motors perform these motions.

The table is controlled by means of a low voltage hand pendant control with functions clearly labeled. A joystick device controls the X-Y translations of the tabletop. Positive floor locks are employed to stabilize the table in the operating location.

Specifications

The table is designed to safely hold up to a 450-pound patient in the proper procedural position at any point within its physical range. The table has a height range of 30 to 40 inches. The width of the tabletop is 21 ½ inches. The length of the tabletop is 86 inches. The lateral tilt range is +/- 20 degrees and the Trendelenburg range is +/- 15 degrees. The longitudinal travel of the Model 6800 is 20 inches at speeds of 2 or 4 inches per sec maximum and the lateral travel is 10 inches at a speed of 2 inches per second maximum. The maximum deflection of the tabletop under full load is less than 1 inch at the cantilever end. The tabletop has a radiolucent equivalency of less that 1-mm of aluminum. The input power requirement is 110 VAC, 60Hz or 220 VAC 60 Hz as indicated on the table label. This is a Class B Medical Device with an IPX-0 Rating.

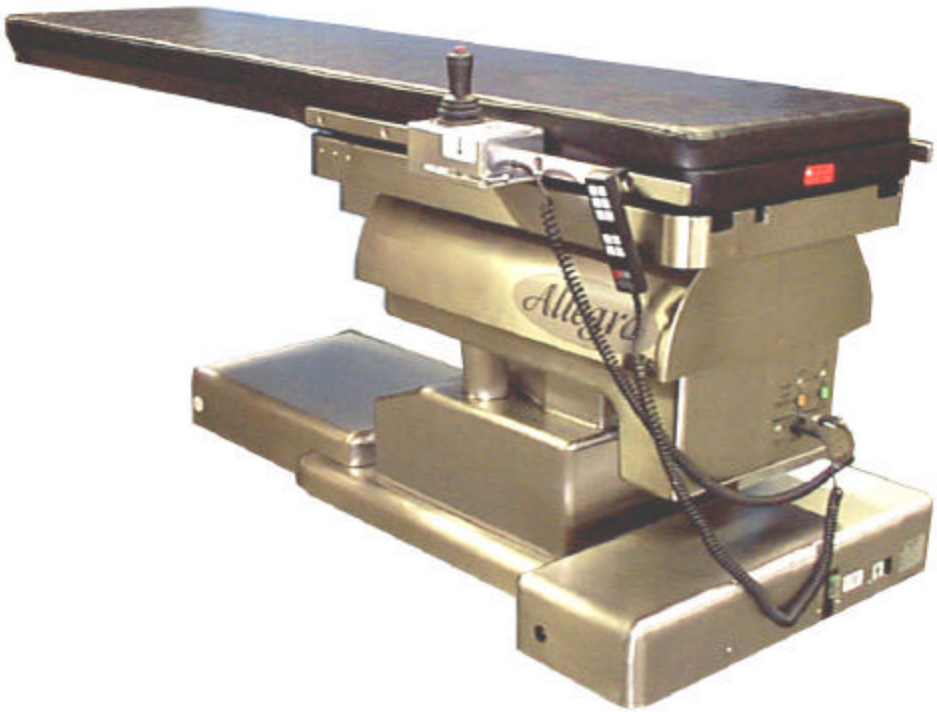


Figure 1.1-Allegro Table General Layout

2.0 CONTROLS IDENTIFICATION

Table Orientation

The major components of the Model 6800 and control panel are identified in Figure 2.1. The patient's head can be located at either end of the table depending on the procedure. Therefore, the table is described as having a Pedestal End and a Cantilever End. The On/Off Switch, Floor Lock Buttons and the Power Cord are located at the Pedestal End of the table.

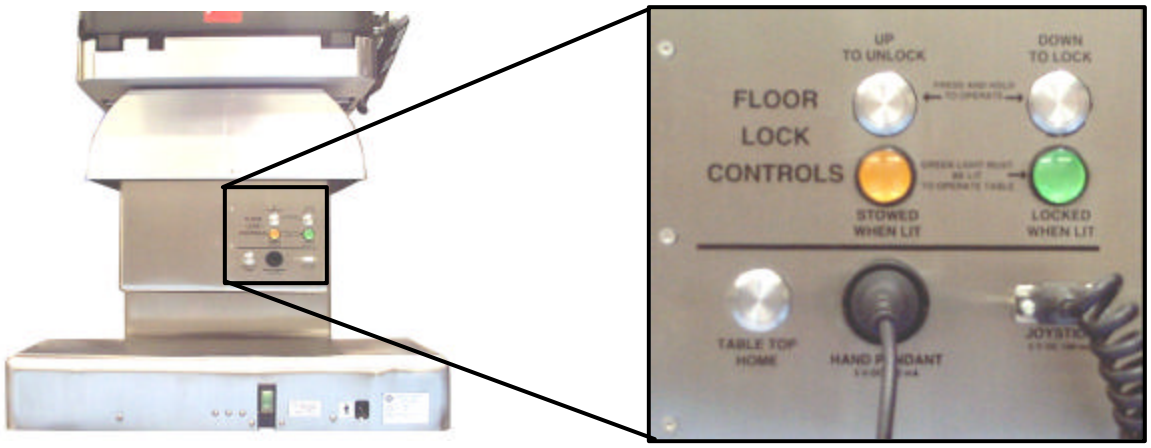


Figure 2.1 - Controls Identification

Model Number and Serial Number

The model number and serial number are printed on the identification label on the Pedestal End of the base.

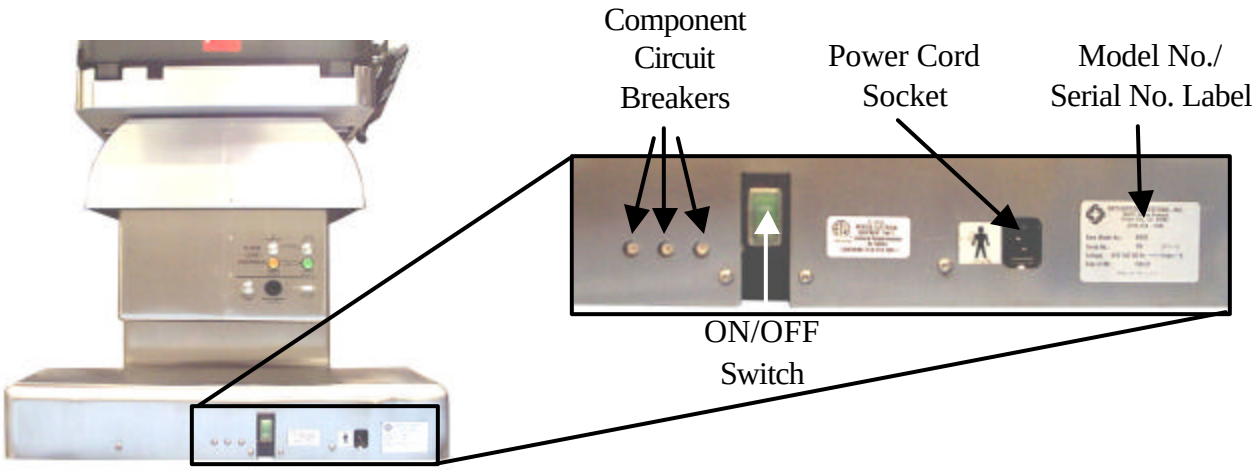


Figure 2.2-Serial Number/Model Number/Identification Label

3.0 BASIC OPERATION

Control Operation

Plug the Power Cord into a properly grounded receptacle. Refer to the label at the Pedestal End of the base for input voltage requirements. (See Figure 2.) Turn on the Power Switch and observe the green light in the switch indicating that power is applied to the table. This rocker switch is a combination on/off power switch, circuit breaker and pilot light.

Floor Lock

The Floor Lock Button is located on the sheet metal housing of the pedestal. To lock the table to the floor, press and hold the Button labeled "LOCK" until the Floor Lock is completely deployed. The green indicator light marked "LOCKED WHEN LIT" will be illuminated when it is locked. To release the Floor Lock, press and hold the Button labeled "UNLOCK" until the Floor Lock is completely retracted. The amber indicator light marked "STOWED WHEN LIT" will be illuminated when it is unlocked. The control buttons on the Hand Pendant as described below can also operate the Floor Lock.

NOTE: *The table will not function until the Floor Lock is completely deployed.*

Hand Pendant: Height, Lateral Tilt and Trendelenburg Adjustment and Floor Lock

The table is controlled by means of a low voltage Hand Pendant control with functions clearly labeled. (See Figure 3.1) The Hand Pendant control should be plugged into the receptacle labeled "HAND PENDANT" on the pedestal end of the table. To operate the floor lock or adjust the height, lateral tilt or Trendelenburg of the table, press and hold the appropriate button on the Hand Pendant until the desired position is achieved.

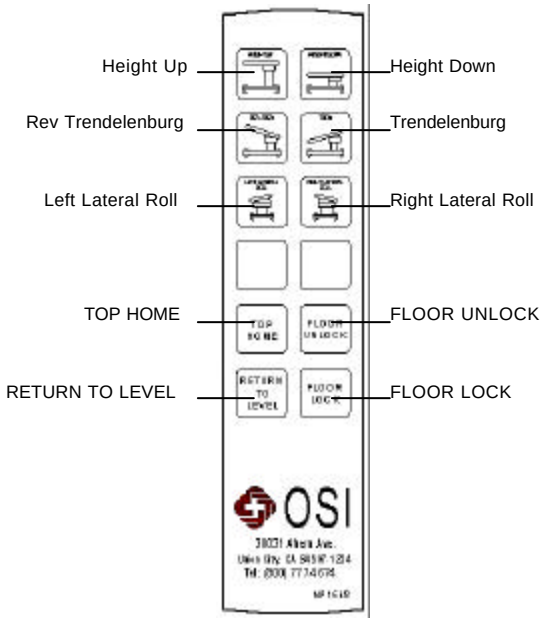


Figure 3.1-Hand Pendant Control

The Hand Pendant control is equipped with a Top Home Button and a Return to Level Button. The Top Home button is used to return the tabletop to its X-Y Home position (See Table Top Home Section below). The Top Home and the Return to Level buttons must be held continuously until the function is complete.
The Return to Level Button is used to level first lateral tilt, second Trendelenburg and third, bring the table to its lowest position. A delay of 3 seconds is programmed after the Trendelenburg function before the table returns to its lowest position.

The controller considers the table to be level if it is within +/- 2 degrees. If the Return To Level Button is pressed while the table is within this range, it will not move. If it is required to adjust the table to a position closer to zero degrees, simply press the appropriate function button on the Hand Pendant until the desired position is achieved.

Table Top Home

The X-Y Home position of the tabletop can be achieved by pressing the Table Top Home Button located on the sheet metal housing of the pedestal or the Top Home Button on the Hand Pendant. This position is defined as the tabletop being centered in its side-to-side travel and all the way to the pedestal and in its longitudinal travel.

Joystick: Table Top Translation

The Lateral and Longitudinal Translation movement of the table is controlled by a Joystick Control suspended from the Side Rail on either side of the Table Top at the pedestal end. The 6800 has 2 speeds of operation for longitudinal travel. Lateral travel is always performed at the normal speed setting. An illuminated green light on the top of the Joystick Control indicates normal speed and an illuminated green light indicates high speed. A Speed Button on the side of the Joystick Control can be pressed once to switch between speeds. It should be noted that the Joystick provides proportional control meaning that the Table travel speed will increase from stop to full speed within the range depending on how far the Joystick is pushed.

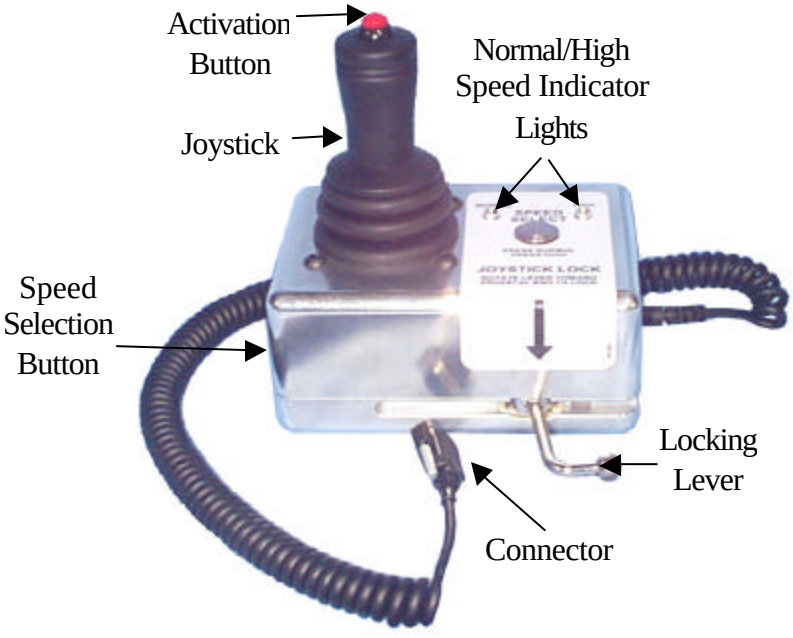


Figure 3.2-Joystick Control

To use the Joystick Control slide it onto the Side Rail and plug it into the receptacle labeled "JOYSTICK" on the pedestal end of the Table. The Locking Lever of the Joystick must be rotated toward the pedestal end of the Table to lock it to the Side Rail. Correct orientation of this lever insures that the direction of travel of the Table will be consistent with the direction of the Joystick.

NOTE: *Failure to engage the Joystick Locking Lever in the proper direction will result in travel in the direction opposite of the Joystick Handle motion.*

The Joystick Control includes an Activation Button that must be depressed while using the Joystick. This feature prevents inadvertent motion of the Table if the Joystick is inadvertently pushed.

To translate the Table, press and hold down on the Joystick Action Button and then push the Joystick Control in the intended direction of travel. Release the Joystick Control when the desired position is achieved. The table will move at a speed that is proportional to the position of the Joystick Handle from the starting center position. Pushing the handle further from center moves the table faster in that direction. Releasing the Joystick stops the table in any position.

NOTE: *Although the Table is designed to travel laterally and longitudinally at any tilt or Trendelenburg angle, it is recommended not to translate the table under full load (i.e. 450 lb. patient) when it is at extreme tilt or Trendelenburg angles.*

Figure 3.3-Patient Supine with head over pedestal

4.0 INSPECTION

Acceptance & Transfer

Upon receipt of your Model 6800 Imaging Table, remove any protective wrapping or packaging. Visually inspect all surfaces for freight damage. Check each caster for proper rolling operation.

NOTE: *Any freight damage must be reported to the freight carrier immediately upon delivery. It is the responsibility of the recipient to make freight damage claims.*

- Verify receipt of the Completeness and Test Report provided with each Table.
- Read the Model/Serial Number Identification Label found at the Pedestal End of the base (See Figure 2.) to confirm the serial number and the input power requirements.
- Place the Table in an area with at least 4 feet of clearance on all sides.
- Perform PRE-OP function check; see section 8.0 & 9.0.

Preoperative

Perform PRE-OP function check; see section 8.0 & 9.0.

Postoperative

Perform PRE-OP function check; see section 8.0 & 9.0.

Annually

- Inspect and test the table as described PRE-OP function; check section 8.0 & 9.0. Thoroughly clean the table as described in the CLEANING section of this manual. Pay special attention to the cleanliness of the controls as excessive soil could affect function.
- Inspect the power cord for cuts in the insulation or damage to the connector.
- Check to see that all fasteners are tight.
- Check the operation and security of the Floor Lock with and without a patient load in place.

5.0 THE ELECTRICAL SYSTEM

Description

The electrical system provides control of all the table functions and is comprised of a Power Cord, an On/Off Circuit Breaker Switch, wire harnesses, a power supply, a controller circuit, a Hand Pendant Control, a Joystick Control, Floor Lock jackscrews, various electromechanical actuators and two stepper motors. The electric motor driven lead screw-type actuators manipulating the height, the Hand Pendant Control controls lateral tilt and Trendelenburg Functions. The Floor Lock Buttons raise and lower the table onto the floor locks. The translation motion of the tabletop is controlled by the Joystick Control and driven by the stepper motors. Drawing number 6800-1001 is the Electrical Wiring Diagram for the Model 6800 Imaging Table. The input power requirement for this table is 120 VAC 60Hz, 6.5 Amp or 220 VAC 50Hz as indicated on the Serial Number Label.

On/Off Circuit Breaker Switch

An illuminated On/Off Circuit Breaker Main Switch is located on the Pedestal End of the base of the table (See Figure 2.2). When illuminated, it indicates that the table is plugged into a live electrical outlet and the power is on. This switch also serves as a circuit breaker. In the event of an overload condition this Switch will trip off. To reset, push to the OFF position and then the ON position.

NOTE: *Determine the source of the overload prior to resetting this switch.*

Component Circuit Breakers

The electrical system includes three individual component Circuit Breakers that provide protection for the major components of the system. These Circuit Breakers are located in the base at the Pedestal End of the table (See Figure 2.2) If a short circuit occurs, the affected Circuit Breaker will trip as evidenced by a button protruding from the Circuit Breaker Access hole. To reset, press the button in and release.

NOTE: *Determine the source of the overload prior to resetting this button.*

Power Cord

The table is equipped with a standard EIC power cord with the appropriate 120 VAC hospital grade connector. (220volt versions do not include the power connector) The Power Cord is connected to the table at the EIC power entry socket located on the base of the Pedestal End near the On/Off Switch.

Floor Lock System

The Model 6800 Imaging Table Floor Lock secures the table by powering 4 jackscrews to lower four legs onto the floor and unloading the swivel casters. Depressing the Floor Lock "LOCK" Button located on the lateral tilt enclosure at the Pedestal End or on the Hand Pendant operates it. The “LOCK” Button is pressed and held until the Floor Lock is completely deployed. This button applies electrical current to each of the four-jackscrew motors. Each leg is monitored by the controller for contact with the floor. In the case of an uneven floor, it is possible that one or more legs will continue to extend until firm contact is made with the floor. Complete locking is evidenced by the illumination of the green “LOCKED WHEN LIT” light located below the button. The table controller requires that the Floor Lock be completely engaged before any other

function can be operated. If the Hand Pendant Control or the Joystick Control will not operate the table, verify that the Floor Lock is completely deployed.

To unlock the Floor Lock, press and hold the Floor Lock "UNLOCK" Button until the amber "STOWED WHEN LIT" light is illuminated indicating that the legs are completely retracted.

6.0 CLEANING

Maintenance

Routine table care will assure many years of trouble-free service. For your convenience we recommend the following:

Cleaning and Disinfecting

NOTE: *Never pour any liquid directly onto the table. Never subject the 6800 Imaging Table to an equipment washing machine.*

USE OF IODOPHORS WILL CAUSE STAINING.

Table Exterior:

1. Exterior surface should be regularly wiped clean with a mild detergent solution and wiped dry with a soft lint-free cloth.

   NOTE: *Do not wipe the support rails for the translating tabletop. These should remain with a light coat of oil at all times.*

2. Care should be taken to avoid exposing the table to excessive moisture. Flooding, fogging or steam cleaning is not recommended.

3. Blood or other fluids, etc., if allowed to remain on the table for a long period of time, will require special cleaning to remove. A 5% acetic acid solution or white vinegar and water solution is especially good for this purpose.

4. Cleaning with a good commercial cleaning compound, such as Stainless Steel Magic or Acme White Finish, and then buffing the surface by hand can correct staining and discoloration of plated or stainless steel surfaces.

5. To disinfect exterior surface use a quaternary ammonium or similar type disinfectant compound according to manufacturer's directions for use. Wipe dry with a soft lint-free cloth.

   NOTE: *Failure to thoroughly dry surface after cleaning and disinfecting may result in rust.*

Casters:

Casters should be cleaned and disinfected in the same manner as table exterior. Access to the casters is achieved by removing the sheet metal enclosures at each end of the table base.

NOTE: *Before removing any sheet metal covers the table must be turned off and unplugged. Dangerous high voltage may be present in the circuitry under the covers. Only trained technicians should perform this task.*

Table Pad:

Remove pad from the tabletop and clean with mild detergent solution. Do not submerge in water. Rinse thoroughly with clean damp cloth then dry using lint-free cloth.

Table Tops:

Disinfect surfaces of Table Tops according to standard hospital procedure.

Lubrication

Table Exterior:
No lubrication is necessary.

Table Interior:
The translation and height adjustment sliding mechanisms of the 6800 Imaging Table require periodic lubrication. There are ten sliders in all and each should be lubricated with Thomson Linear Lube grease (or equivalent) once a year. Four sliders are on the lateral translation rails, four are on the longitudinal translation rails and two are on the main table column. Apply the grease through the zerk fittings located on each slide bearing housing. Do not over lubricate.

All other components are lubricated for life at the factory and no other lubrication on the table is necessary.

Table Storage

When not in use the table should be stored in a clean dry environment with temperature between 32°F & 120°F.

7.0 PRE-OP. FUNCTION CHECK

Perform all steps in this procedure. For a complete definition of reference terms used in this procedure, please refer to the “glossary of terms”.

PRE-OP. FUNCTION CHECK:

1) Plug in the Hand Control Assembly (Assy.) cable into the table control-panel port at the "rear" of the table.
2) Plug in and screw tight connector from the joystick assy. into control panel labeled “Joystick”.
3) Attach and correctly orient the rail lock on the joystick assy. The table is programmed to know what rail the joystick is on by the position of joystick lock-lever. This lever needs to always lock in place toward the rear of the table.
4) Plug in the 120VAC power cord into a “hospital grade” outlet and flip on the main “On/Off” power switch. Note that the switch illuminates indicated that 120VAC power is in the table.
5) Lockout mode: Table is only operational if the “Locked when lit” green indicator located on the control panel is lit. Verify that the hand control functions do not operate except for activating floor locks.
6) Floor locking check using the control panel:
   a) Press and hold “Down to lock” button until green “Locked when lit” light is on. Table cannot move on its wheels.
   b) Press and hold “Up to Unlock” button until amber light is on. Table can move on its wheels.
7) Hidden “Floor lock override" button check:
   a) Press and hold "Floor Lock Override" button located under control panel. "Up, Down, Tilt, and Trendelenburg" functions work without having table locked to floor.
8) Joystick check:
   a) Move the handle without pressing “ACTIVATION” button. No functions initiate.
   b) Verify proportional, variable speed operation. Press and hold “ACTIVATION” button and move joystick. The tabletop moves in the direction of handle. Small handle movements away from center, result in slow speeds while larger movements result in faster tabletop speeds.
   c) Press the "SPEED SELECT" button, illuminating the “high-speed” light and deactivating the “Normal” light. Tabletop can move at twice the speed in the long direction.
   d) Relocate Joystick Assy. to other side of table. See step 3 for more information. Re-check section 8 procedures validating internal joystick locking lever sensor detected positional change.
9) Hand Control check: Cycle all button functions below to their limits,
   a) Press and hold "FLOOR LOCK" button. Observe all four locking feet move down and contact the floor; control panel "Locked When Lit" green light is lit.
   b) Press and hold "FLOOR UNLOCK" button. All four locking feet move up and "Stowed When Lit" indicator is on.
   c) Press and hold "HEIGHT UP" button. Tabletop moves up regardless of position of tabletop.
   d) Press and hold “HEIGHT DOWN" button. Tabletop moves down regardless of top position.
   e) Press and hold "REV. TREN" button. Front of tabletop moves up.
   f) Press and hold "TREN" button. Front of tabletop moves down.
   g) Press and hold "LEFT LATERAL ROLL" button. Tabletop tilts to the left.
   h) Press and hold "RIGHT LATERAL ROLL" button. Tabletop tilts to the right.

i) Disorient tabletop by raising height two inches, tilting tabletop and performing Trendelenburg minimum five degrees. Press and hold "RETURN TO LEVEL" button. Tabletop first levels tilt and Trendelenburg and then after a three-second delay, the tabletop moves down.

j) Use the Joystick to move the tabletop. Press and hold "TOP HOME" button on Hand Control. Tabletop moves to center and furthest rearward position. Perform this same step but use the control panel "TOP HOME" button.

10) Front Panel ports (if equipped) repeat checks:

a) If you table is equipped, validate all operations presented on this page by connecting Hand Control and Joystick to these front ports.

8.0 GLOSSARY OF TERMS

Basic assumptions of Patient Orientation on the tabletop:
Our glossary of terms and technical procedures assume the patient is oriented with their head at the "front of table" and their feet at the "rear of table". The hand control functions are oriented for this position only.

"**Rear of table**" indicates the end of the table where the power cord, "On-Off" switch, and Control Panel are located; otherwise referred to as the "pedestal end".
"**Front of table**" indicates the opposite end of the table also referred to the "cantilever end".
"**Control Panel**" is a panel of buttons and lights located on the rear of the table.
"**Pedestal**" refers to the main column structure that supports the tabletop.
"**Left side of the table**" refers to the table as you stand at the rear of table.
This also corresponds to the hand control button labeled "Left Lateral Roll".
"**Right side of the table** refers to the table as you stand at the rear of table.
This also corresponds to the hand control button labeled "Right Lateral Roll".
"**Raise the table**" refers to raising the height of the table.
This also corresponds to the hand control button labeled "Height Up".
"**Lower the table**" refers to lowering the height of the table.
This also corresponds to the hand control button labeled "Height Down".
"**Raise the front of the table**" refers to raising the height of the front or cantilever end of the tabletop.
The corresponding hand control button is labeled "Rev. Tren" (Reverse Trendelenburg).
"**Lower the rear of the table**" refers to lowering the height of the rear or pedestal end of the tabletop.
The corresponding handset button is labeled "Tren" (Trendelenburg).
"**Level the Table**" refers to leveling the tabletop regardless of height.
The corresponding hand control button is labeled "Return to Level".
Holding the "Return to Level" button longer than approximately three seconds will also lower the tabletop to its lowest position.
"**Top Home**" refers to centering the tabletop from left to right and is at rest furthest rearward.
The corresponding hand control button is labeled "Top Home".
"**Unlock the floor locks**" refers to rising the floor locks up 0.5 inches off the floor, allowing the table to freely roll on its wheels. The floor locks, when down, will prevent the table from rolling.
The corresponding hand control button is labeled "Floor Unlock".
The corresponding control panel button is labeled "Up to Unlock" with the corresponding amber light activating, indicating, "Stowed when Lit".
"Hospital Grade" outlet refers to a 120VAC outlet properly wired with earth ground: Neutral to Common = 120VAC; Neutral to Ground = 120VAC; Common to Ground less than zero point five (0.5) VAC.

9.0 TROUBLESHOOTING

Electrical System

In the advent of a table malfunction, the first item to investigate is the input power. Be certain that the Power Cord is plugged into a live electrical outlet and the Power Switch is ON. An illuminated ON/OFF Switch indicates this.

If none of the functions are operating, the Floor Lock may not be completely deployed. Press the FLOOR LOCK Button until the green "LOCKED WHEN LIT" light is illuminated.

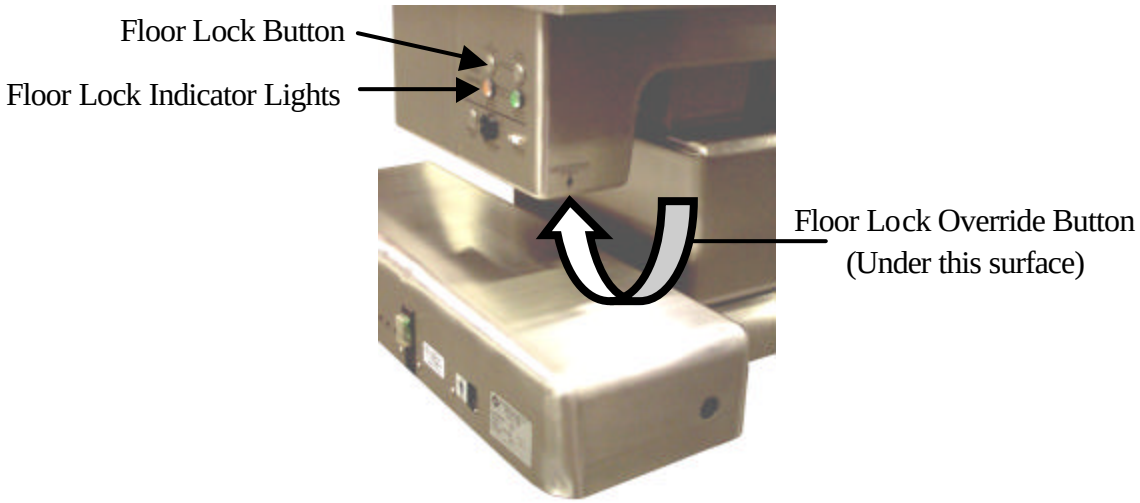
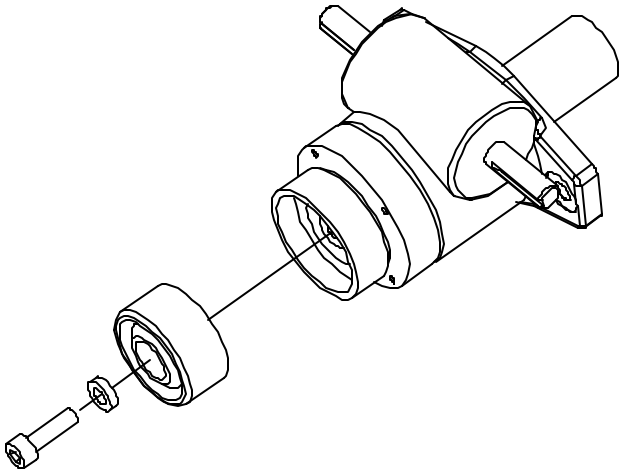


Figure 7.1-Floor Lock Override Button

If the Floor Lock is deployed as evidenced by visual inspection, whether or not the green light is on, and the Up/Down, Lateral Tilt or Trendelenburg functions do not operate, a Floor Lock Override Button can be used to temporarily bypass the interlock on the Floor Lock system. This button is located on the underside of the sheet metal housing at the Floor Lock Buttons (See figure 5). Press and hold this button while simultaneously operating the desired function on the Hand Pendant. Once released, no functions will be operable and this button must be pressed again if subsequent table movement is required. This Override Button only powers the height, Trendelenburg and tilt functions on the Hand Pendant and is intended for emergency situations only. If it becomes necessary to use this feature, call OSI Technical Service immediately to arrange for table repair.

10.0 REMOVAL and REPLACEMENT of COMPONENTS

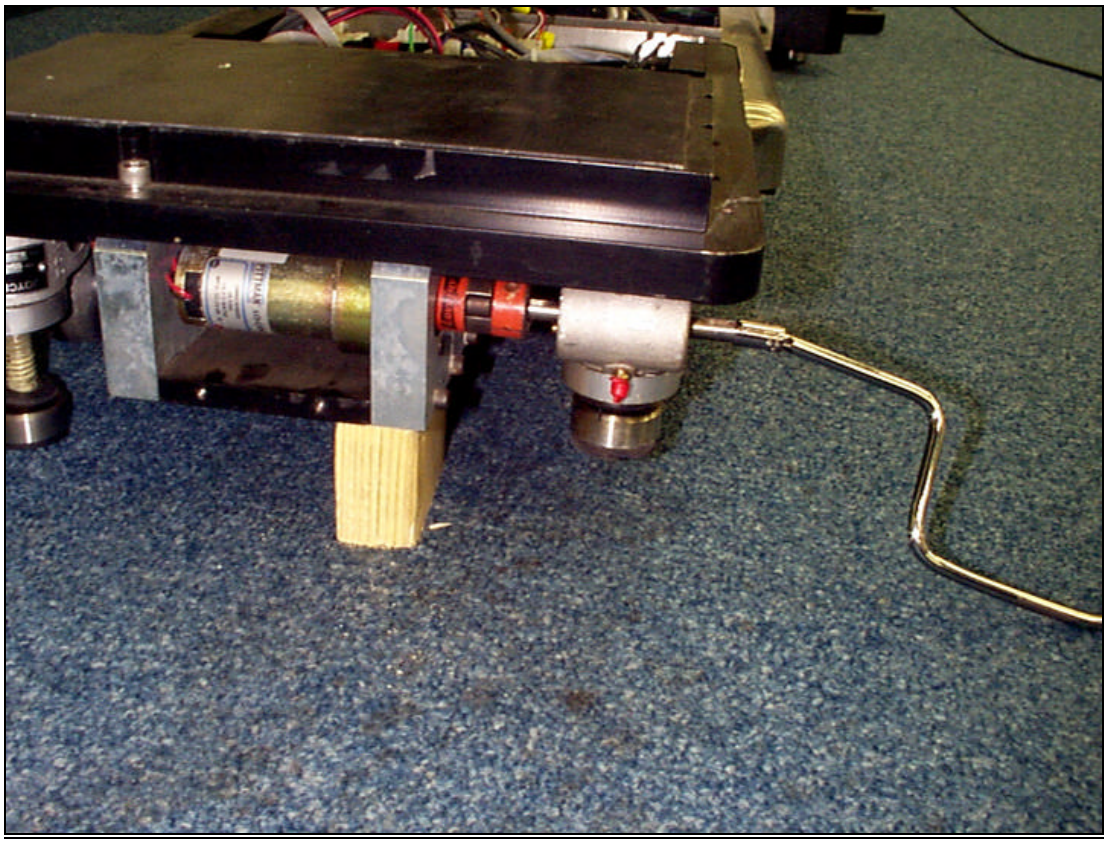
Floor-lock Foot Replacement:



1. Flip on main "On/Off" power switch. The switch illuminates, indicating 120VAC power is to the table.
2. Lock table to floor; Press and hold "Down to Lock" button until green "Locked When Lit" light is on.
3. Flip off main "On/Off" power switch. Wait 30 seconds for discharge. Unplug power cord from properly grounded wall outlet.
4. Remove base-access cover from end of table needing replacement.
   Caution: Electrical shock hazard exists with access covers removed; use caution when working in exposed areas.
   a. Pry off two white-plastic access plugs for the floor lock jackscrew using a small screwdriver.
   b. Remove four screws attaching the cover using a 1/8 hex key.
   c. Remove access cover.
5. Raise end of table using Floor-lock Crank Handle (p/n 6800-230 supplied with table). See Photo 1.
6. Place 2-1/2 inch high support-block under jackscrew floor-lock motor-mount.
7. Carefully lower table onto support-block using Floor-lock Crank Handle.
   Caution: Make certain table remains stable.
8. Raise jackscrew floor-lock off the floor to its maximum height, using Floor-lock Crank Handle.
9. Remove Brake Pad (p/n MZC700004B0) by removing M6-1.00 x 20mm socket-head screw (p/n MZA00206200) using 5mm hex key.
10. Install replacement Brake Pad.
    If the standard attachment screw is bent; the first threads may be damaged requiring replacement with an optional, longer screw M6-1.00 x 35mm (p/n AAM6035CAN).
    a. Install replacement Brake Pad with attachment screw and washer using 5mm hex key.
11. Lower jackscrew floor-lock to the floor using floor-lock Crank Handle, lifting the table until the support-block can be removed. Carefully remove support-block.
12. Adjust jackscrew floor-lock, using floor-lock Crank Handle, until table caster rests on floor.
13. Replace base-access cover and attach with four screws using a 1/8 hex key.
14. Replace two white-plastic access plugs for the floor lock jackscrew.

15. Plug table power cord into wall outlet and flip on main “On/Off” power switch.
16. Lock table to floor; press and hold “Down to Lock” button until green "Locked When Lit" light is on.
17. Verify all jackscrew floor-locks contact the floor to lock the table from movement. Adjust as required.
18. Unlock table from floor; Press and hold “Up to Unlock” button until amber "Stowed When Lit" light is on.
19. Verify all jackscrew floor-locks clear the floor to unlock the table from movement.

Photo 1.Table with support-block in place at cantilevered end, jackscrew floor-lock raised.



Tilt Sensor-Actuator:

Top (X-Y Stage) Cover removal:

1. Flip on main “On/Off” power switch. The switch illuminates, indicating 120VAC power is in the table.
2. Press and hold “Down to Lock” button until green "Locked When Lit" light is on.
3. Move tabletop to highest position and maximum left-tilt using hand control.
4. Move tabletop to maximum left-translation position using joystick,.
5. Remove left Y-stop bracket (the L-shaped bracket with rubber bumper) by removing two screws with 5/32 hex key.
6. Move tabletop to maximum right-tilt using hand control.
7. Move tabletop to maximum right-translation position using joystick.
8. Remove right Y-stop bracket (opposite left Y-stop bracket) by removing two screws with 5/32 hex key.
9. Remove X-Y stage cover by removing four screws, two on each side, using 1/8 hex key.
10. Slide X-Y Stage Cover off end of tabletop.

Left Tilt Cover removal:

1. Remove left tilt cover (the bell shaped housing).
   Note: On some older tables, front X-Y stage cover must be removed to access one 4-40 mounting screw. Do not replace this screw during reassembly.
2. Remove seven flat-head screws, using 1/16 hex key.
3. Remove three screws located on top surface of left-tilt cover using 1/8 hex key. Move tabletop with joystick to maximum left transitional position. Move tabletop, with casting recess (viewed best from below) for best screw clearance and easiest access.
4. Flip off main “On/Off” power switch. Wait 30 seconds for discharge.
5. Remove left tilt cover.
   Caution: To prevent damage to the sensors use care removing or replacing this cover.

Original Tilt Sensor removal:

1. Cut any cable ties holding the existing tilt sensor wire-harness to the tilt sensor bracket.
2. Gently pull the two sets of wires from the tilt sensor.
   Note: The color-coding, white-marked connector into white-marked "Tilt Adjust" socket, black-marked connector into black-marked "Trend Adjust" socket.
3. Remove original tilt sensor by removing two 1/4-20x1/2 in. cap-head screws using 3/16 hex key.

Replacement Tilt Sensor installation:

1. Attach the replacement tilt sensor with two screws using 3/16 hex key.
2. Plug in wire harnesses connecting to tilt sensor. Connect the white shrink-tube-marked connector into white-marked "Tilt Adjust" socket, black shrink-tube-marked connector into black-marked "Trend Adjust" socket.
3. Attach harness to sensor bracket, as needed, with small nylon cable tie. Use care to prevent possible damage by moving parts.

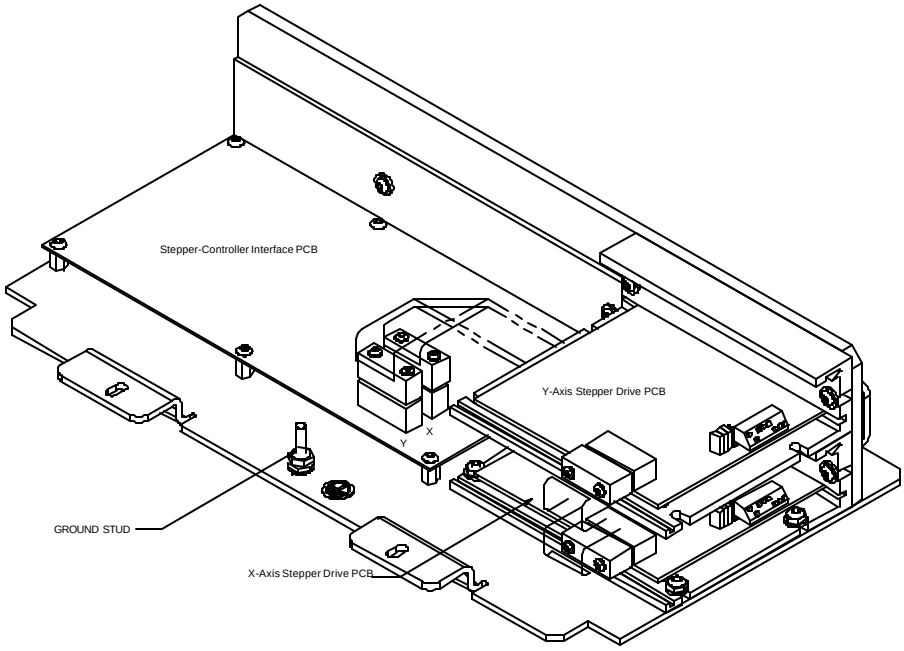
Tilt Sensor Calibration:.

Note: Use a bubble level, resting on the tabletop, as a level gauge. The level sensor adjustment screws are accessed from the top of the unit. A two-degree maximum dead-band exists for each axis. For "Return-to-Level" to function, the tabletop must be outside of this dead-band.

1. Flip on main “On/Off” power switch. The switch illuminates, indicating 120VAC power is in the table.
2. Press and hold “Down to Lock” button until green "Locked When Lit" light is on.

3. Raise the tabletop to a comfortable level.
4. Push the " Left Lateral Roll" or "Right Lateral Roll" buttons to level tabletop.
5. Push the "Left Lateral Roll" button to tilt the tabletop more than five degrees.
6. Push the "Return-to-Level" button to level the tabletop; note the degree of level.
7. Push the "Right Lateral Roll" button to tilt the tabletop more than five degrees.
8. Push and hold the "Return-to-Level" button to level the tabletop; note the degree of level.
9. Turn the "Tilt Adjust" screw a partial turn.
   Note: Clockwise will stop the tabletop more to the right, counter-clockwise will stop the tabletop more to the left. Tabletop will overshoot each stopping point, requiring "splitting the difference" to adjust for proper balance.
10. Test the adjustment by:
    10.1. Push the "Left Lateral Roll" button to tilt the tabletop to maximum.
    10.2. Push the "Return-to-Level" button to level the tabletop; note the degree of level.
    10.3. Push the "Right Lateral Roll" button to tilt the tabletop to maximum.
    10.4. Push the "Return-to-Level" button to level the tabletop; note the degree of level.
11. Continue adjustments until tabletop stops from either maximum lateral roll at the same offset from zero.
12. Trendelenburg / Reverse-Trendelenburg calibration.
    12.1. Repeat steps of "Left and Right Lateral Roll" calibration using "Trendelenburg / Reverse-Trendelenburg".
13. Push the illuminated "On/Off" switch to off, green light goes out. Wait 30 seconds for discharge
14. Attach Left Tilt Cover.
    Caution*:* Use care replacing this cover to prevent damage to the sensors.
15. Place the Left Tilt Cover in its original position.
    15.1. Install the three screws attaching left tilt cover, located on top surface, using 1/8 hex key. Move tabletop with joystick to maximum left for best screw clearance and easiest access.
    15.2. Install the seven screws attaching the left and right tilt covers using a 1/16 hex key.
16. Attach X-Y Stage Cover.
    16.1. Place the X-Y Stage Cover onto the tabletop.
    16.2. Install the four screws attaching the X-Y stage cover using a 1/8 hex key.
    16.3. Install the two flat-head screws attaching the left Y-stop bracket using 5/32 hex key.
    16.4. Install the two flat-head screws attaching the right Y-stop bracket using 5/32 hex key.

Stepper-Controller Tray:



Removal of old unit:

1. Flip off the main "On/Off" power switch, and wait 30 seconds for discharge. Unplug power cord from wall outlet.
2. Remove base cover by removing the six screws using 1/8 in hex key.
3. Lift off front base cover.
4. Remove cables from Stepper Controller PCB.
   Caution: Cable connectors are not marked, mark as needed.
   a. J1 and J2 - to X & Y stepper drivers.
   b. P1 - Joystick input.
   c. P2 - Com Port.
   d. P3 - Power In.
   e. P4 - Power Out.
   f. P6 - Senders
   g. P7 - Analog I/O
   h. P8 - Digital I/O
5. Remove cables from Stepper Driver PCBs.
   Note: Y Stepper PCB is above and cables marked white, X Stepper below marked black).
   a. J2 - Power
   b. J3 - Motor
6. Remove the ground wires from the ground stud.
7. Remove the two tray mounting screws closest to the table pedestal using 5/16 in hex key.
8. Loosen the two, horizontal, tray mounting screws using 5/16 in hex key.
9. Carefully lift out the Controller Tray.

Installation of replacement unit:

1. Carefully install replacement Controller Tray.
2. Attach the two tray mounting screws closest to the table pedestal using 5/16 in hex key.
3. Tighten the two, horizontal, tray mounting screws using 5/16 in hex key.
4. Install the grounding wires onto the ground stud.
5. Attach cables from Stepper Driver PCBs.
   a. J2 - Power

b. J3 - Motor

6. Attach cables from Stepper Controller PCB.
   a. J1 and J2 - from X & Y stepper drivers.
   b. P1 - Joystick input.
   c. P2 - Com Port.
   d. P3 - Power In.
   e. P4 - Power Out.
   f. P6 - Senders
   g. P7 - Analog I/O
   h. P8 - Digital I/O

X-Y Axis Stepper-motor High-Speed Adjustment Procedure:

With front base cover removed and using the joystick to control the stepper motors and a stopwatch to time the total travel time:

1. Position each motor at one end of its travel using the joystick.
2. Switch the joystick to high speed and verify "High Speed" green light is on.
3. Without activating the button on the top of the joystick, move the joystick in the extreme opposite direction.
4. Press the button and the start time on the stopwatch.
   a. X-Axis motor (large motor), travel time = 4.5 seconds +/- .2 seconds.
   Note: If the motor does not meet this requirement adjust R86 on Stepper Controller PCB and re-test.
   b. Y-Axis motor, travel time = 4.5 seconds +/- .2 seconds.
5. Note: If the motor does not meet this requirement adjust R87 on Stepper Controller PCB and re-test.
6. Using the hand control, joystick and control panel, run all functions through the entire range 5 times.

Table Floor-Lock System Adjustment Procedure:

Adjust floor lock potentiometers to read .65V (point 65V) +/- .02V (point 02V).

1. Using voltmeter connect ground probe to TP-2 (Analog Ground).
2. Connect positive probe to TP-3 and observe voltage.
3. Adjust trim pot R11 until voltage reads .65V +/- .02V.
4. Repeat steps for TP-4 and R19, TP-5 and R27, TP6 and R35.

Table Floor-Lock System Test Procedure:

Using Hand Control and Control Panel operate floor "LOCK" and "UNLOCK" buttons through their full range and observe:

1. All 4 floor lock motors should move while the button is pressed and all motors should stop when the button is released.
2. The floor lock light (green) should come on when all 4 motor feet are extended and all motors should stop.
3. The floor lock stowed light (amber) should come on when all 4 motor feet are retracted and motors should stop.
4. All motors should stop even when the button is held after the light (amber or green) comes on.
   Note: If the floor lock motors appear to be out of sync (excessive travel distance between the group), this may indicate problems with the motor, gearbox or the controller.

10 Amp Motor-control PCB:

1. Removal of old unit.
2. Flip off the main “On/Off” power switch, and wait 30 seconds for discharge. Unplug power cord from wall outlet.
3. Remove front base cover by removing the six screws using 1/8 in hex key.
4. Lift off front base cover.
5. Remove power supply cover by removing the four screws using 1/8 hex key.
6. Lift off the power supply cover.
7. Remove cables from 10 Amp Motor-controller PCB.
8. Caution: Cable connectors are not marked, mark as needed.
   a. J1 "TO STEPPER CONTROLLER" -
   b. P1 "TO INTERUPT" - to Stepper Controller/Component Interface.
   c. P2 "TO PC" - no connection.
   d. P3 "KEYPAD" - Extension Cable (p/n NV0564) to Hand Control.
   e. P4 "OUTPUT" - no connection.
   f. P5 "POWER IN" - Power Cable (p/n 6800-274) to DC Power Supply.
   g. P6 - white marked cable to Trendelenburg Actuators.
   h. P7 - to Tilt Sensor Assy. (p/n6800-247).
   i. P8 - blue marked cable to Trendelenburg Actuators.
   j. P10 - orange marked cable to Tilt Actuator.
   k. P11 - to Tilt Sensor Assy. (p/n6800-247).
   l. P12 - yellow marked cable to Vertical Actuator.
   m. P13 - no connection.
   n. P15 - no connection.
   o. P17 - no connection.
   p. P18 "INPUT" - no connection.
9. Remove the two #10 socket-head screws attaching the 10 Amp Motor-controller PCB mounting bracket (located under the PCB).
10. Lift the mid-section base cover and remove the two #10 socket-head screws attaching the 10 Amp Motor-controller PCB mounting bracket.
11. Carefully lift out the two #10 socket-head screws attaching the 10 Amp Motor-controller PCB assy.
12. Reassemble in reverse order.

11.0 TECHNICAL DRAWINGS and PARTS LISTS

6800 Allegro Table Interconnect Diagram

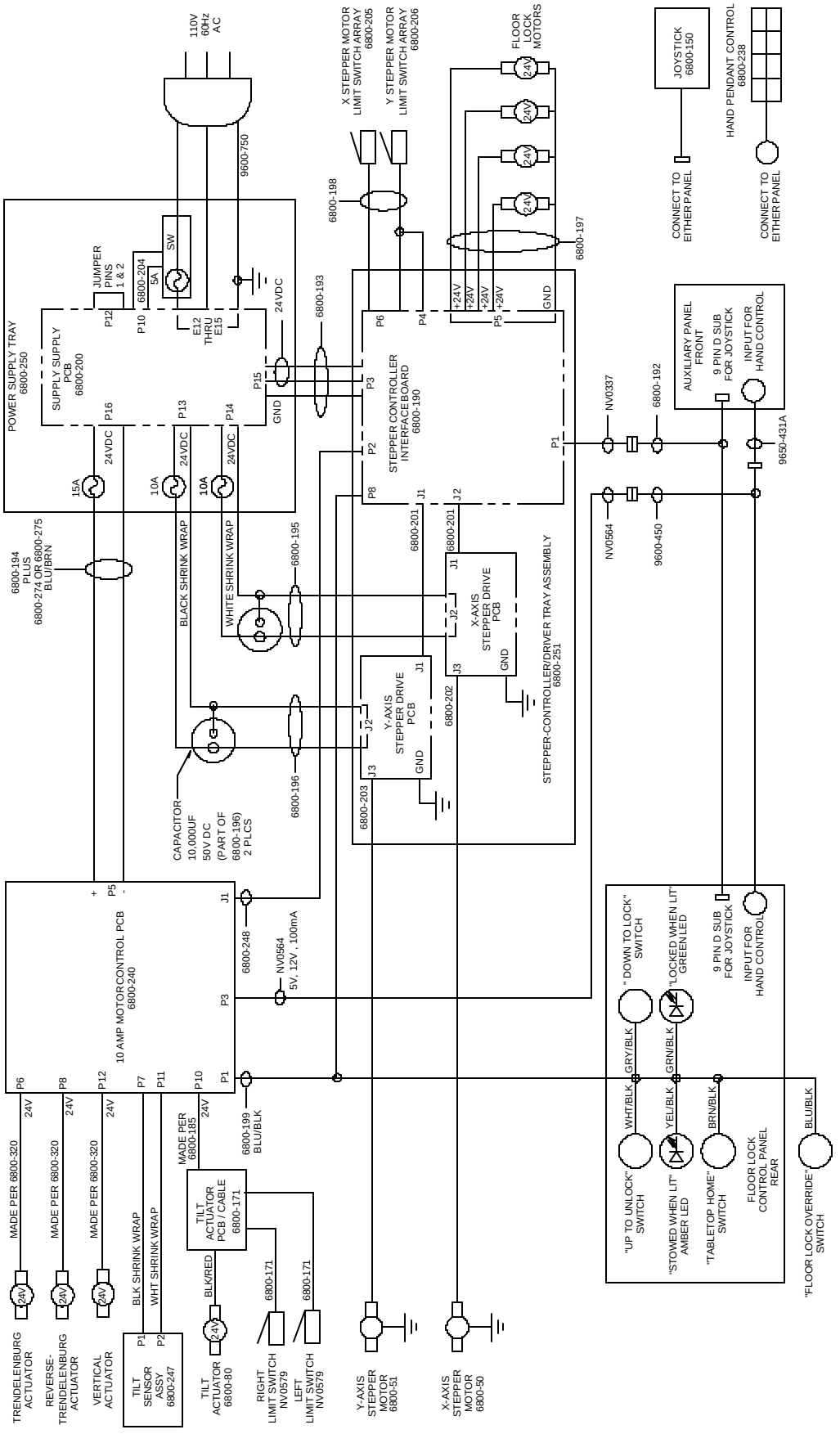
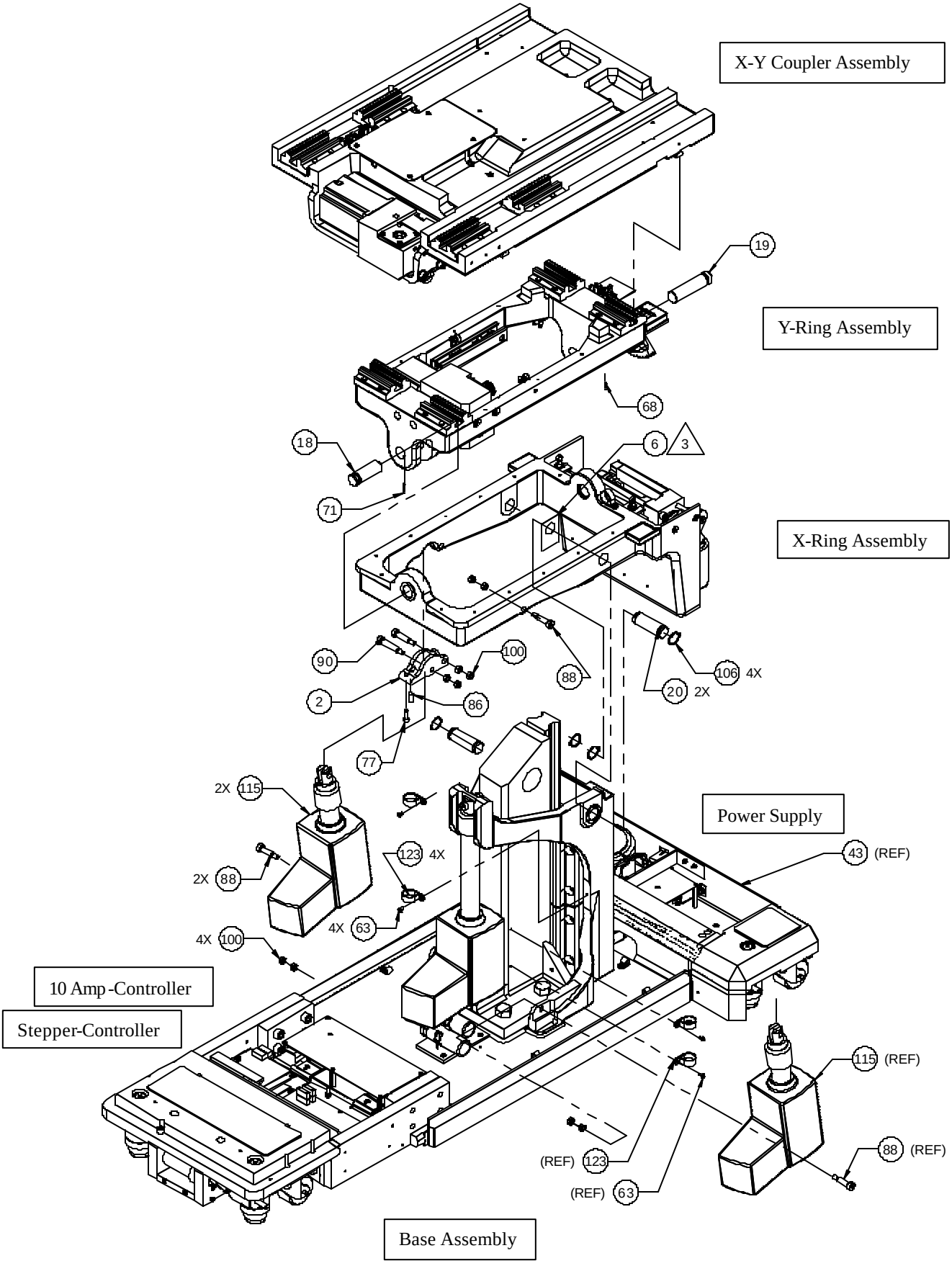


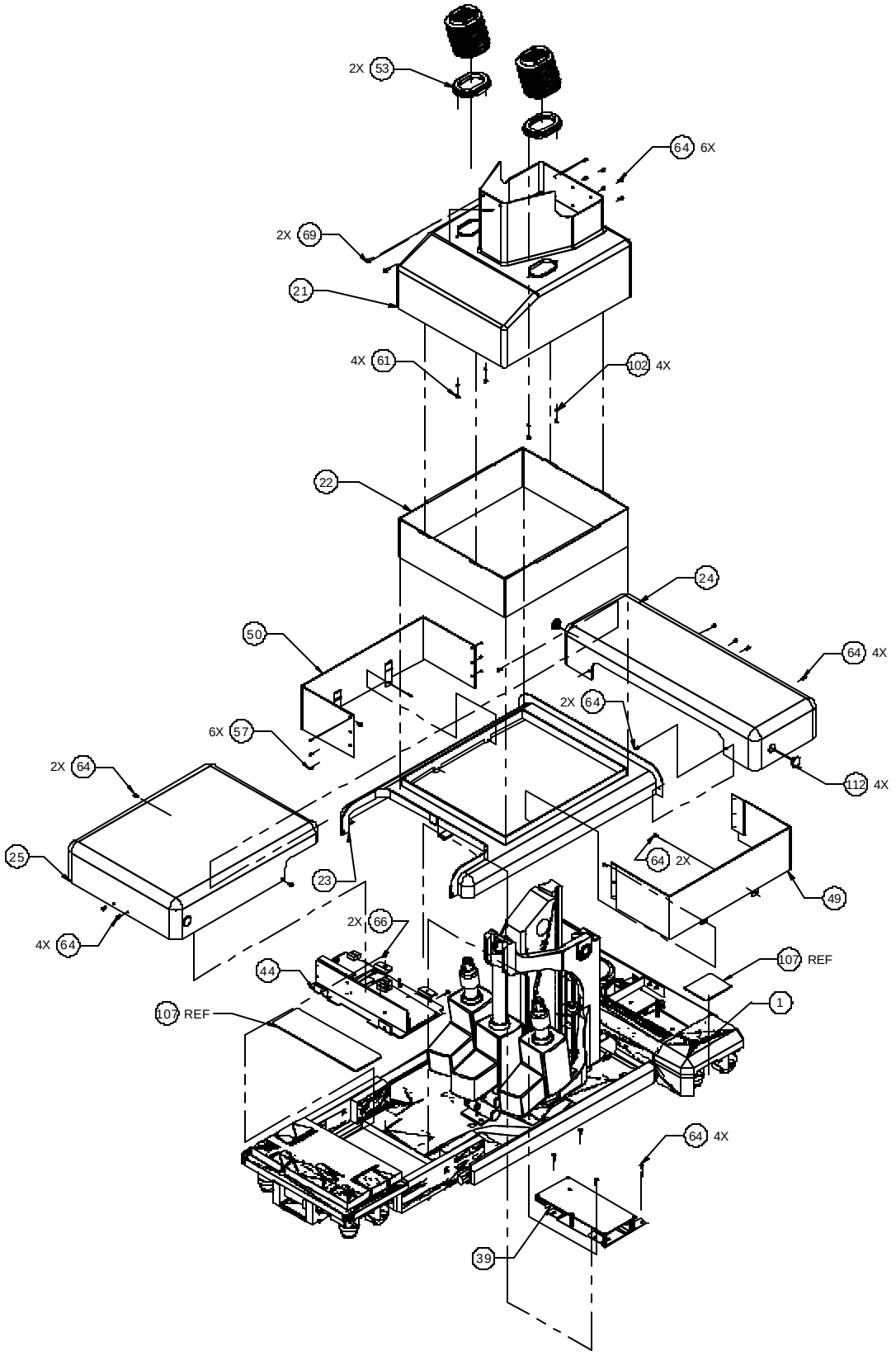
Table Assembly Bill of Materials

70	9650-431A	CABLE, HANDSET EXTENSION 20 IN	1				
69	AAAT075AAC	#10-32 X .75 SST BTN HD SKT SCR	4	142	NV0711	MOLEX SOCKET CRIMP 28-22 AWG	16
68	AAAT050HAC	#10-32 X .50 SST SKT SET SCR	1	141	NV0630	CONNECTOR HOUSING , MALE , 8 CIRCUIT 39-01-2080	4
67	AAAT050BAC	#10-32 X .50 SST FLHD SKT SCR	2	140	6800-76	TILT WORM GEAR SHIM, .005	1
66	AAAT050AAC	#10-32 X .50 SST BTN HD SKT SCR	12	139	6800-274	10 A MOTOR CONTROL POWER CABLE	1
65	AAAT037CAC	#10-32 X .37 SST CAP HD SKT SCR	8	138	6800-248	CABLE ASSY., FLAT RIBBON M-F DB9	1
64	AAAT037AAC	#10-32 X .37 SST BTN HD SKT SCR	55	137	6800-246	TILT SENSOR WIRE HARNESS	1
63	AAAT031AAC	#10-32 X .31 SST BTN HD SKT SCR	34	136	6800-203	CABLE ASSY, Y-AXIS STEPPER MOTOR CONTROL	1
62	AAAT025HJA	#10-32 X .25 SELF LOCKING SKT SET SCR	2	135	6800-202	CABLE ASSY, X-AXIS STEPPER MOTOR CONTROL	1
61	AAAT025AAC	#10-32 X .25 SST BTN HD SKT SCR	4	134	6800-199	DIGITAL I/O WIRE HARNESS	1
60	AAAM037CAC	#6-32 X .37 SST CAP HD SKT SCR	1	133	6800-198	SENSOR ARRAY WIRE HARNESS	1
59	AAAM018AAC	#6-32 X .188 SST BTNHD SKT SCR	2	132	6800-197	FLOOR LOCK HARNESS ASSY.	1
58	AAAK025AAC	#5-40 X .25 SST BTNHD SKT SCR	4	131	6800-193	CABLE ASSY, PWR SPL TO STEPPER CONTROLER	1
57	AAAH031BAC	#4-40 UNC X .31 FLAT HEAD SOCKET SCREW, SS	17	130	6800-119	TILT WORM GEAR SHIM .O239 THICK	2
56	AAAH018BAC	#4-40 UNC X .188 FLAT HEAD SOCKET SCREW, SS	6	129	6800-118	TILT WORM GEAR SHIM .OO7 THICK	2
55	9650-231	1/2 IN RUBBER CUSHIONED STEEL LOOP CLAMP	7	128	9650-225	.25 INCH PLASTIC CABLE CLAMP	1
54	9650-227	.375 INCH PLASTIC CABLE CLAMP	10	127	NV0649	.75 INCH PLASTIC CABLE CLAMP	3
53	6800-271	BELLOWS MOUNT	2	126	6800-185	ACTUATOR POWER CORD	1
52	6800-270	TILT COVER, RIGHT	1	125	NV0653	HORIZONTAL MOUNTING CLIP, CAPACITOR	2
51	6800-269	TILT COVER, LEFT	1	124	6800-192	JOYSTICK Y CABLE	1
50	6800-268	COLUMN SKIRT, FIXED, RIGHT	1	123	NV0650	1 INCH PLASTIC CABLE CLAMP	5
49	6800-267	COLUMN SKIRT, FIXED, LEFT	1	122	6800-196	CABLE ASSEM, X-AXIS STEPPER MOTOR	1
48	6800-263	X-RING COVER , RIGHT	1	121	NV0587	STAINLESS STEEL BUTTON	4
47	6800-262	X-RING COVER, LEFT	1	117	NV0259	3/8 IN RUBBER CUSHIONED STEEL LOOP CLAMP	7
46	6800-260	BELLOWS SUPPORT	2	116	NP1549	ELECTRICAL GROUND LABEL	2
45	6800-259	BELLOWS	2	115	NL1255	ACTUATOR, ELEC., 100mm, LINAK	2
44	6800-251	CONTROLER TRAY ASSEMBLY	1	114	NG0753	JACKSCREW #4-40 X 187 X .31 THD W/WASH & NUT	6
43	6800-250	POWER SUPPLY TRAY ASSEMBLY	1	113	NG0752	#10-32 PEM SELF CLINCHING SS	8
42	6800-249	TILT SENSOR SPACER	1	112	NB0339	EAGLE PLASTIC NYLON HOLE PLUG Ø1.00	4
41	6800-247	TILT SENSOR ASSEMBLY	1	111	6800-195	CABLE ASSEM, Y-AXIS STEPPER MOTOR	1
40	6800-244	CAPACITOR MOUNT PLATE	1	110	NA0190	THOMSON RAIL 25MM X 508 MM	2
39	6800-239	ASSY, 10 AMP MOTOR CONTROL	1	109	NA0189	THOMSON 25MM CARRIAGE STD LENGTH	4
38	6800-230	ASSEMBLY, MANUAL FLOOR LOCK CRANK	1	108	NA0186	THOMSON CARRIAGE 25MM LONG	4
37	6800-229	X-RING WITH BUSHINGS ASSY	1	107	KA0060400	1/16 X 4 1/2 NEOPRENE RUBBER W/ADH	24 "
36	6800-208	FLOOR LOCK LED YELLOW	1	106	AJ0117	RETAINING RING EXTERNAL 1" DIA, BLK PHS	4
35	6800-207	FLOOR LOCK LED GREEN	1	105	AE040081A	WASHER, FLAT .400 X .81 X .051	2
34	6800-206	Y-AXIS SENSOR ARRAY ASSY AND WIRING DIA.	1	104	AE037075H	WASHER, FLAT HEAVY DUTY .38 ID .75 0D	4
33	6800-205	X-AXIS SENSOR ARRAY ASSY AND WIRING DIA.	1	103	AE037068BD	WASHER, LOCK .38 X .68 HEAVY DUTY	4
32	6800-187	BRACKET, TABLE RETURN TO CENTER FLAG, Y-AXIS	1	102	AE019050KA	SHOULDER WASHER #10 NYLON	4
31	6800-186	BRACKET TRAVEL STOP FLAG, Y-XIS	2	101	AE018037D	STAR LOCK WASHER, INTERNAL, .18 X .37	3
30	6800-171	TILT MOTOR LIMIT SWITCH ASSY	1	100	MZA30108030	8 mm HEX NUT	10
29	NV0337	10 FT EXTENSION CABLE M-F DB9	1	99	ADATA	#10-32 HEX NUT	3
28	6800-174	BRKT, TILT MTR LIM SW MNT	2	98	NV0564	CABLE, HANDSET EXTENSION 2.4 M LONG	1
27	6800-173	PC BOARD MOUNT, TILT MOTOR	1	97	AC012025	POP RIVET, .12 X .25 LG	8
26	6800-148	CABLE TRAY, Y-RING	1	96	AAM8035CAN	M8 X 35 SOCKET HEAD CAP SCREW GR 12.9	8
25	6800-133	BASE COVER, FRONT	1	95	AAM8030CAN	M8 X 30 SOCKET HEAD CAP SCREW GR 12.9	14
24	6800-132	BASE COVER, BACK	1	94	AAM8030BAN	M8 X 30 FLAT HEAD SOCKET SCREW GR 12.9	3
23	6800-130	BASE COVER, MID SECTION	1	93	AAM8025CAN	M8 X 25 SOCKET HEAD CAP SCREW GR 12.9	7
22	6800-129	COLUMN SKIRT FLOATING	1	92	AAM6030CAA	M6-1.00 X 30mm SKT HD CAP SCR, GR12.9	18
21	6800-127	COLUMN SLIDER COVER	1	91	AAM6025CAN	M6-1.00 X 25mm SKT HD CAP SCR, GR12.9	16
20	6800-99	PIN, TRENDELENBURG	2	90	AAM10045FA	10mm DIA. X 45mm LG, SKT HD SHLDR SCR	1
19	6800-98	PIN ,TILT, BACK	1	89	AAM10035FA	10mm DIA. X 35mm LG, SKT HD SHLDR SCR	1
18	6800-97	PIN, TILT, FRONT	1	88	AAM10030FA	10mm DIA. X 30mm LG, SKT HD SHLDR SCR	3
17	6800-96	SWIVEL BRACKET MOUNT WASHER	2	87	AABF125CA	1/2-13 X1.25 CAP HD SKT SCR	2
16	6800-95	PRESSURE PLATE, TILT ACTUATOR MOUNT	1	86	AABB075HA	3/8-16 X .75 SCK SET SCR	1
15	6800-94	SWIVEL BRACKET ADJUSTMENT BRACKET	1	85	AABB175DDA	3/8 -16 X 1.75 HEX HEAD CAP SCREW GRADE 8	1
14	6800-90	SWIVEL BRACKET WELDMENT, TILT	1	84	AABB175CAN	3/8-16 UNC X 1.75 CAP HD SKT SCR GR 8	3
13	6800-80	ASSEMBLY, TILT ACTUATOR	1	83	AABB125CAC	3/8-16 UNC X 1.25 SST CAP HD SKT SCR	4
12	6800-79	TILT AXIS WORM GEAR	1	82	AABB100CAC	3/8-16 X 1.0 SST CAP HD SKT SCR	2
11	6800-77	TILT WORM GEAR SHIM, .010	2	81	AABB075CAC	3/8-16 X .75 SST CAP HD SKT SCR	2
10	6800-75	TILT WORM GEAR SHIM, .002	1	80	AABB075CAA	3/8-16 X .75 CAP HD SKT SCR GRADE 8	3
9	6800-73	X-Y CORD COVER PLATE	1	79	AAAY350DD	5/16 -18 X 3.5 HEX HEAD CAP SCREW	2
8	6800-72	GEAR RACK, Y-AXIS, X-Y COUPLER	1	78	AAAW125CA	1/4-20 X 1.25 CAP HD SKT SCR,	2
7	6800-70	X-Y COUPLER, CASTING MACHINED	1	77	AAAW075CA	1/4-20 X .75 CAP HD SKT SCR	3
6	6800-54	SHIM, 1.00 DIA PIN	6	76	9600-450	T-CABLE ASSEMBLY, HANDSET	1
5	6800-51	ASSY, STEPPER MOTOR AND GEAR BOX Y-AXIS	1	75	AAAW050CA	SCREW, CAP, HEX, 1/4-20 UNC-2A X .50L	2
4	6800-50	ASSY, STEPPER MOTOR AND GEAR BOX X-AXIS	1	74	AAAW050BAC	1/4 X 20 FLAT HEAD SOCKET SCREW	4
3	6800-38	Y-RING MACHINED	1	73	AAAT125CAC	#10-32 UNF X 1.25 LG, SST CAP HD SKT SCR	5
2	6800-37	TRENDELENBURG ADJUSTMENT LEVER, X-RING	1	72	AAAT125BAC	#10-32 X 1.25 SST FLHD SKT SCR	1
1	6800-7	BASE FEET AND COLUMN SUBASSEMBLY	1	71	AAAT075HA	#10-32 X .25 SST SKT SET SCR	7
ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY

Table Assembly Exploded View



Base Cover Assembly Exploded View



Rear Base Cover Assembly Exploded View

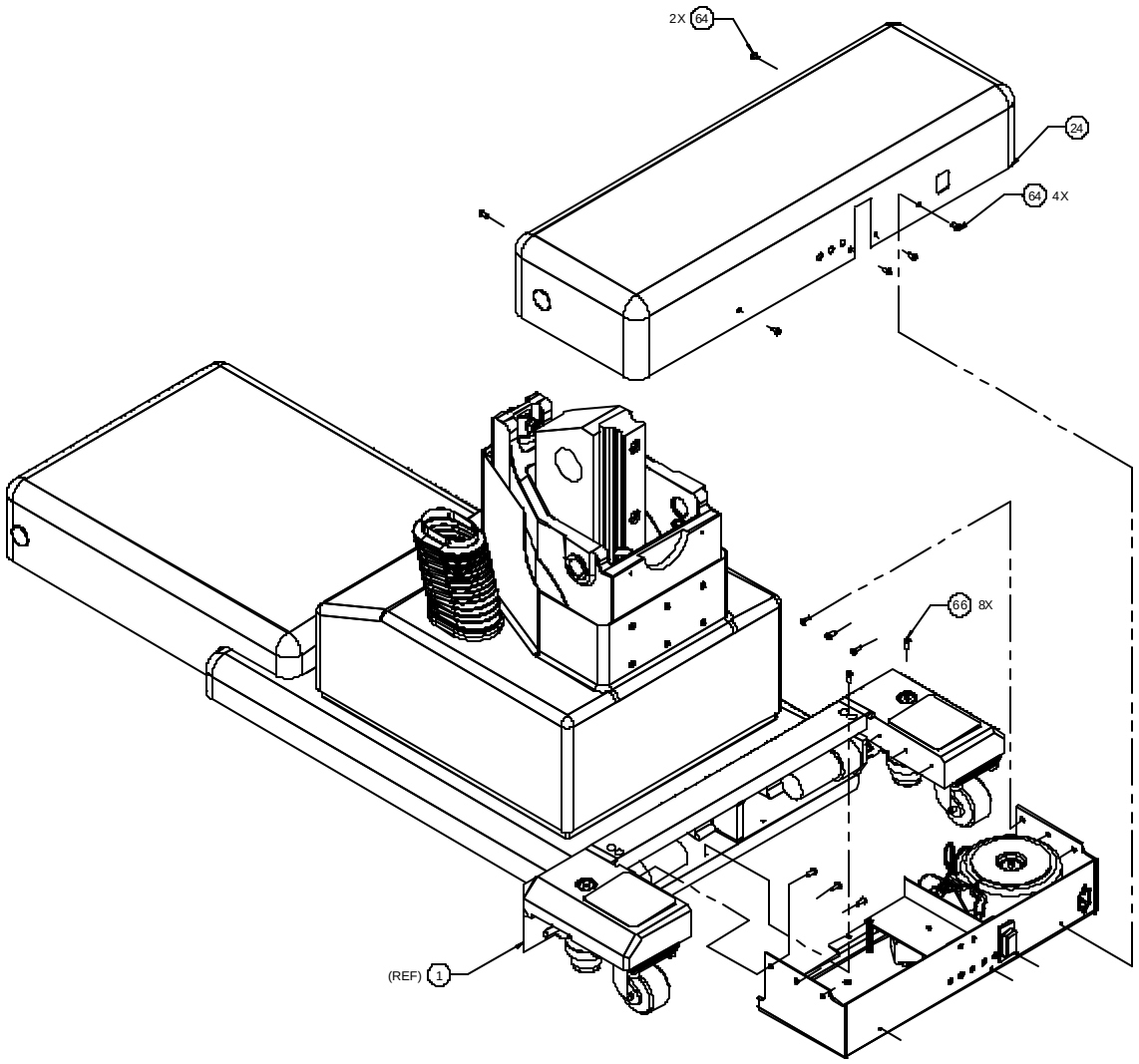
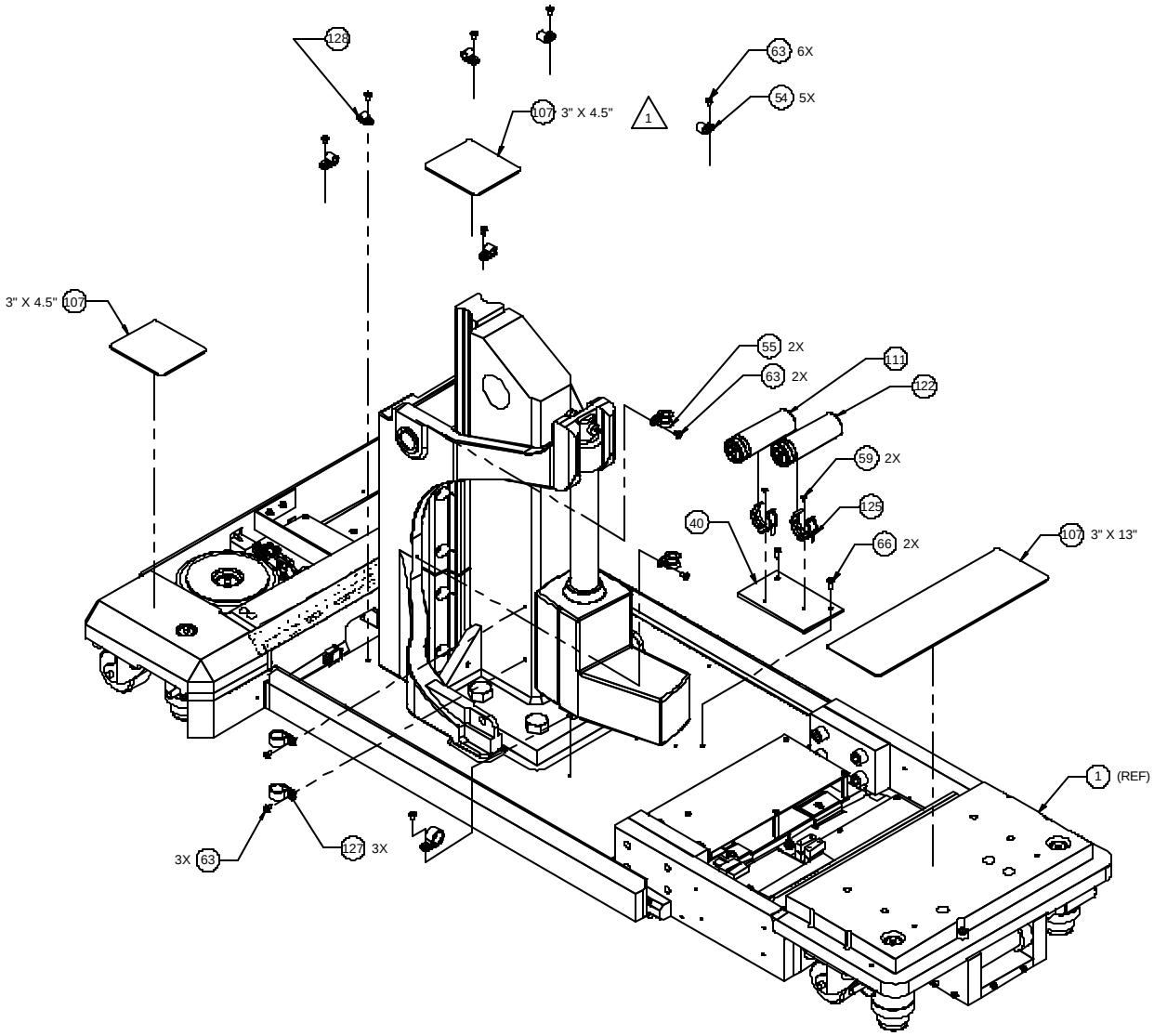
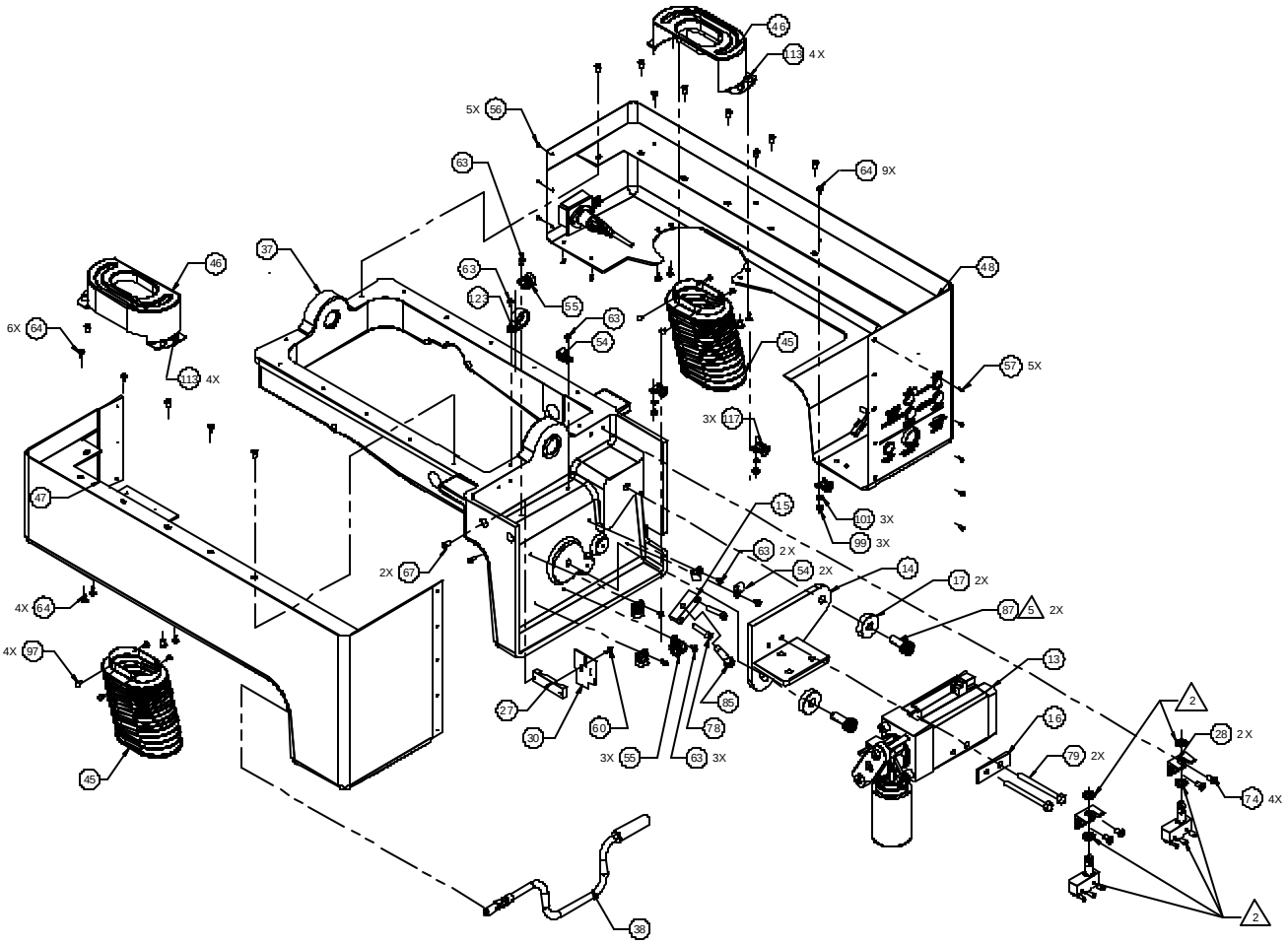


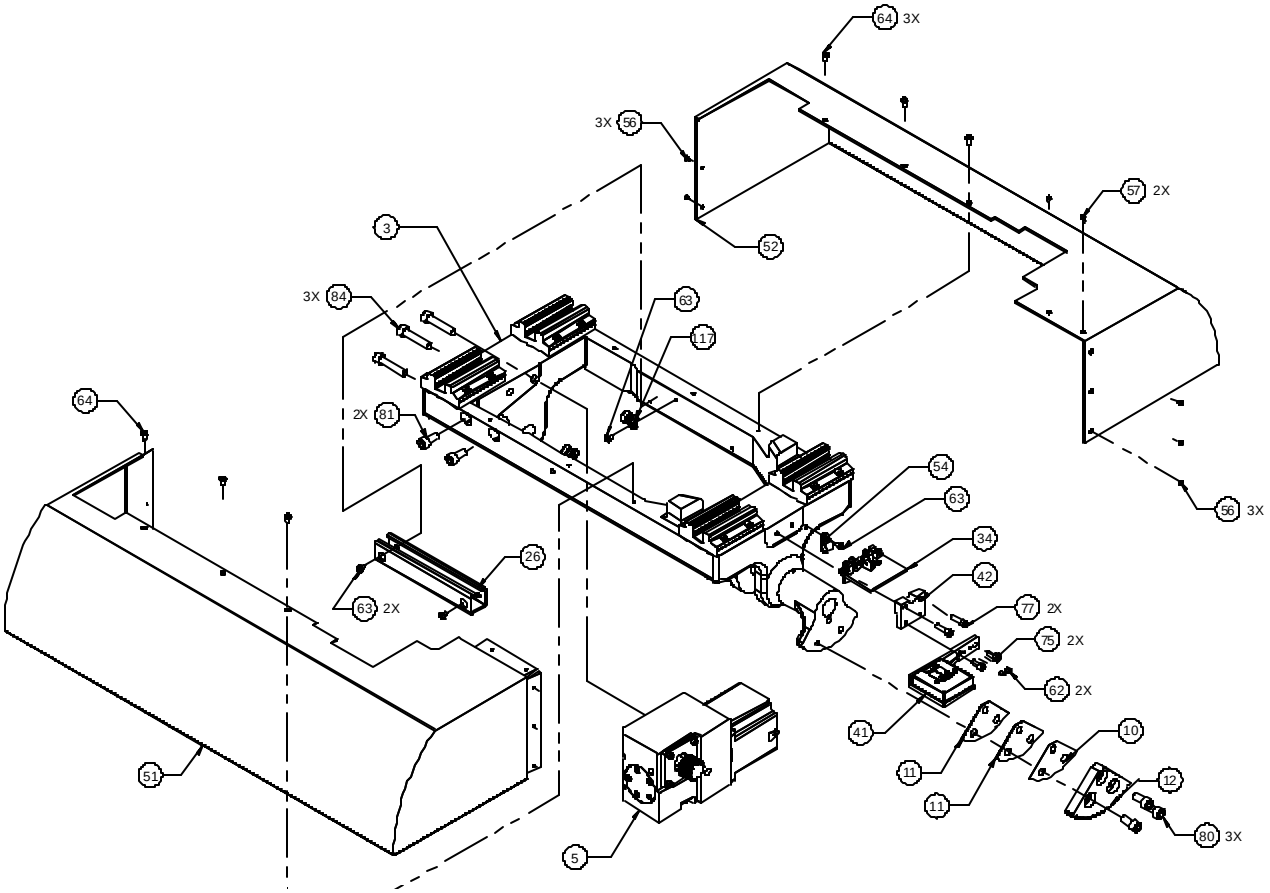
Table Base Assembly Exploded View



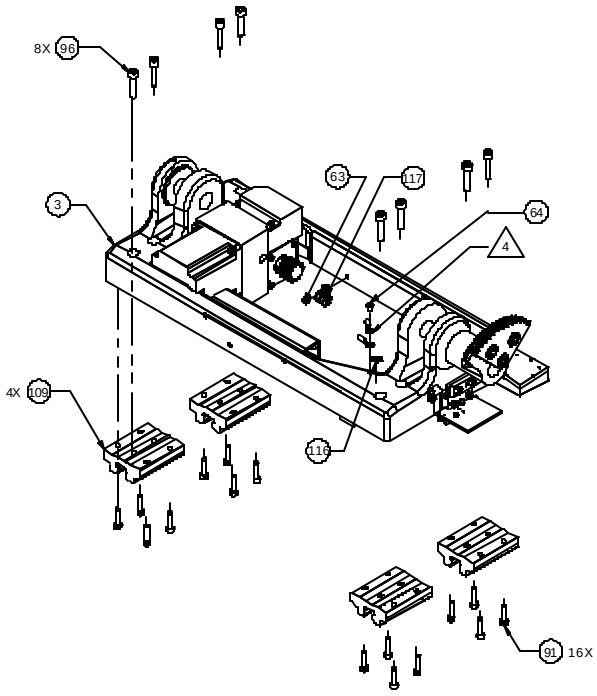
X-Ring Assembly Exploded View



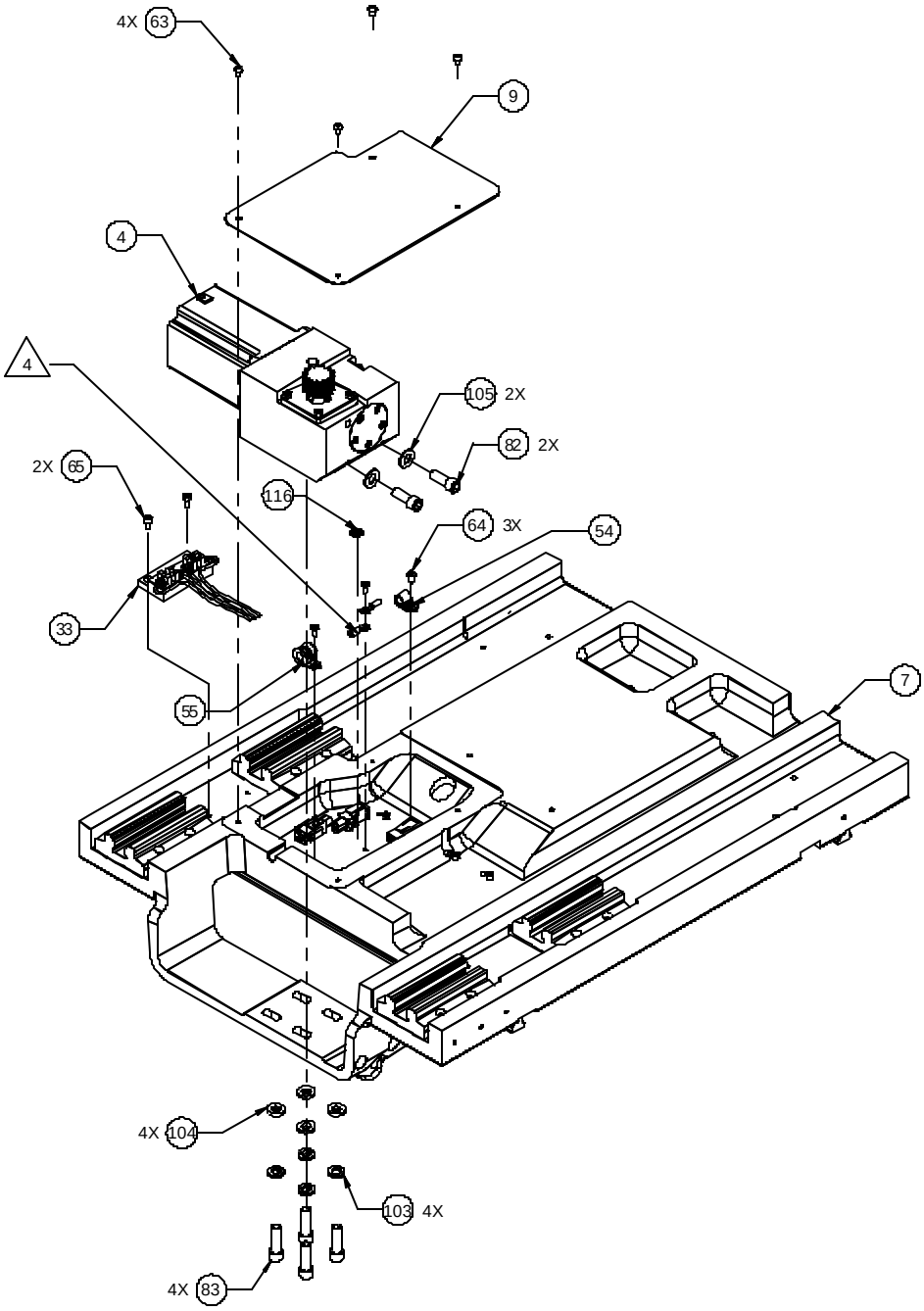
Y-Ring Assembly Exploded View



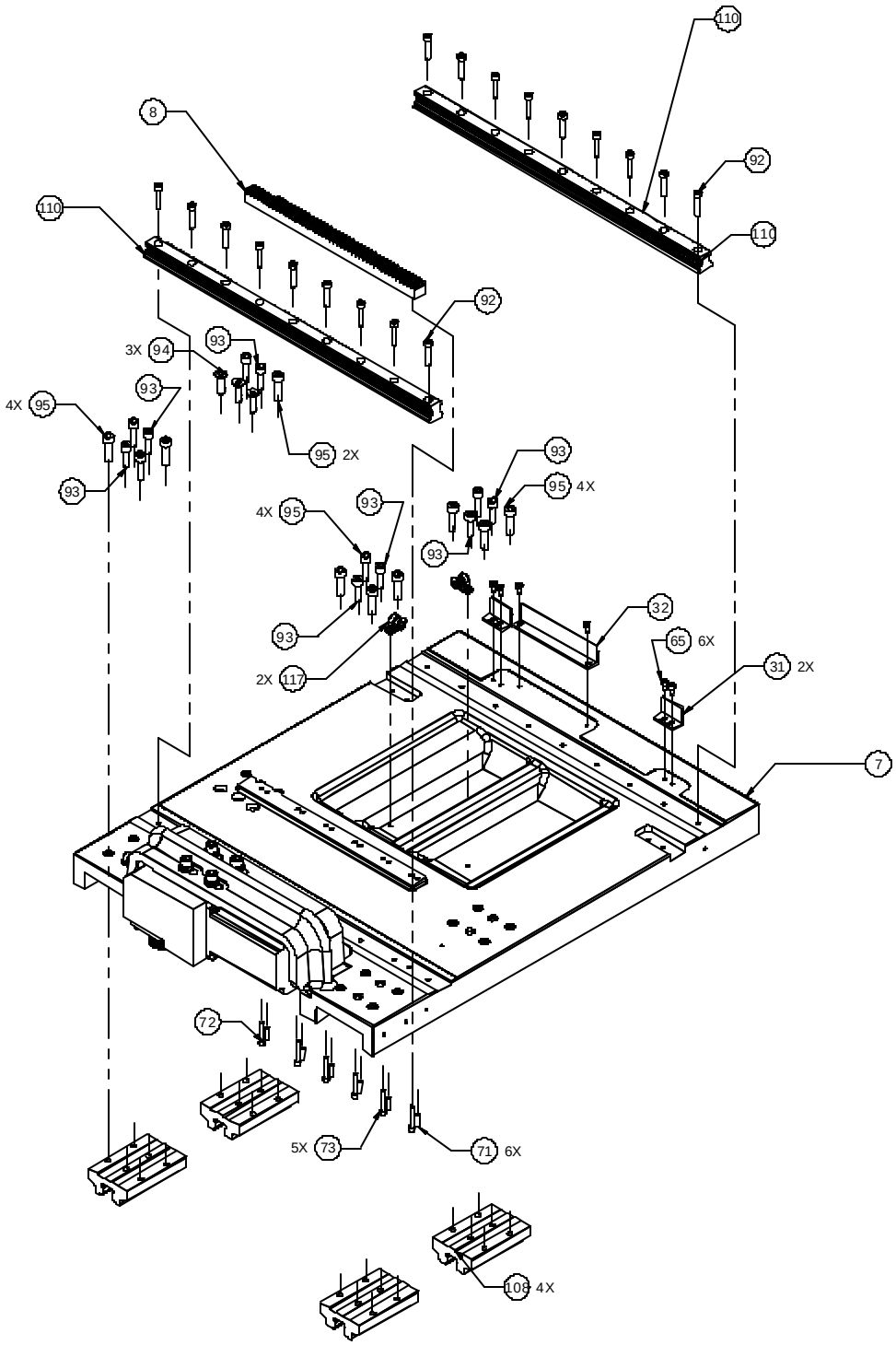
Y-Ring Assembly Bottom View



X - Y Coupler Assembly Exploded View



X - Y Coupler Assembly Bottom View



Replacement / Spare Parts List

1. Hand Control……..……..……..p/n (part number) 6800-238
2. Joystick……..……..…..…..……p/n 6800-280
3. Power Supply Tray Assembly……...……..…..…….p/n 6800-250
   a. Power Cord, Right Angle…….....…..…..……..…..…...….p/n 9600-750
   b. Power Cord Receptacle……...……..…..……..p/n NV0585
4. LED (Light Assembly), Amber……..……..…….....……..p/n 6800-208
5. LED (Light Assembly), Green.……..…….……..…….p/n 6800-207
6. Floor Lock Assembly……...……...…..p/n 6800-210
   a. Floor Lock Motor Assembly……....…..……...……..p/n 6800-217
   b. Floor Lock Pad……...……...…..….p/n MCZ700004B0
7. 10 Amp Motor-Controller PCB Assembly……....…..….p/n 6800-239
8. Stepper-Controller/Driver PCB Tray Assembly……..p/n 6800-251
9. Tilt Actuator Motor Assembly……..…..……..……...…..…p/n 6800-80
10. Stepper Motor & Gearbox, X-axis…….p/n 6800-50
11. Stepper Motor & Gearbox, Y-axis…….p/n 6800-51
12. Tilt Sensor Assembly……..……..……p/n 6800-247

12.0 OSI TECHNICAL SERVICE

Contact for Parts and Service:

For detailed repair information or to order replacement parts, call the OSI Technical Services Department:

1-800-777-4674

A Technical Services line is available from 8AM-5PM PST, Monday through Friday. Please leave a message after business hours.
Please state *slowly* your name, phone number, your facility name and city, and affected equipment model number.

An e-mail message may be left anytime at techsvcs@osisosi.com or through the Technical Service icon in our web site: www.osiosi.com.

To order Replacement Parts (RP):

1. If unable to identify part - telephone, fax or E-mail to Technical Service.
2. If part is known - telephone, fax or E-mail part number and description to Customer Service for price and availability.
3. To place Replacement Parts (RP) order - telephone, fax or E-mail part number, description, price, customer number and method of shipment to Customer Service with purchase order. Indicate that order is for Replacement Parts (RP).

To return damaged parts (RGA):

1. Identify parts to be returned.
2. Telephone, fax or E-mail part number and description of parts for return to Customer Service for Return Goods Authorization (RGA) number.
3. Return ship parts with RGA number clearly marked on outside of package.

To send a part or item here for us to repair (RA):

1. If unable to identify part - call, fax or E-mail to Technical Service.
2. If part is known - telephone, fax or E-mail part number and description to Technical Service for Repair Authorization (RA) number.
3. Clean (disinfect) parts prior to shipping.
4. Ship part with RA number clearly marked on outside of package.
5. Part will be evaluated and customer will be contacted with the cost of repair.
6. After customer approval of repair cost, part will be repaired and return shipped to customer.

End